

MONITORING REPORT TITLE

GUAZHOU BEIDAQIAO NO.1 WIND FARM PROJECT IN GANSU PROVINCE, CHINA

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1 PROJECT DETAILS

1.1 Summary Description of Project

Guazhou Beidaqiao No.1 Wind Farm Project in Gansu Province, China (hereinafter referred to as “the project”) is located in Guazhou County, Jiuquan City, Gansu Province, China. The primary objective of the proposed project is to generate renewable electricity to meet the ever-increasing demand in the Gansu Grid and Northwest China Power Grid (NWPG). The Project has been registered as a CDM project on September 29th, 2011 (UNFCCC registration reference number: 4254).

The proposed project installs 67 sets of SL1500 wind turbine units and 67 sets of GW1500 wind turbine units at the proposed project site, with a capacity of 1,500 kW per unit. The total installed capacity is 201MW. Dependent on the reliability of the local wind resource, the proposed project is expected to supply 461,464 MWh of electricity annually to the NWPG.

During the monitoring period (03/01/2011 - 28/09/2011), the monitoring activities were conducted strictly in accordance with the monitoring plan in the registered PDD. The Project has operated without any accidental or emergency events that might impact the accuracy and/or implementation of monitoring activities. The net feed-in electricity during this period is 332,994MWh. The total emission reductions in this monitoring period are 309,444tCO₂e.

1.2 Sectoral Scope and Project Type

Energy industries (renewable -/non-renewable sources), the project is not a grouped project.

1.3 Project Proponent

The Project Developer, Hydrochina Guazhou Wind Power Co., Ltd. is the Project Proponent.

In the following table 1.3.2, the contact information of all project participants is shown.

Table 1.3.2 Contact information of the Project proponent

Organization:	Hydrochina Guazhou Wind Power Co., Ltd
Street/P.O.Box:	No. 16, Nandajie St., Guazhou County, Jiuquan City, Gansu Province
Building:	3F, CIBC Building
City:	Jiuquan City
State/Region:	Gansu Province
Postfix/ZIP:	736100
Country:	China

Telephone:	+86-937-5525807
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E-Mail:	Lzchendp@yahoo.com.cn
URL:	-
Represented by:	-
Title:	General Manager
Salutation:	Mr
Last Name:	Chen
Middle Name:	-
First Name:	Dengping
Department:	-
Mobile:	+86-15293766156
Direct FAX:	+86-937-5525807
Direct tel:	+86-937-5525807
Personal E-Mail:	Lzchendp@yahoo.com.cn

1.4 Other Entities Involved in the Project

There is no any other project participant(s).

1.5 Project Start Date

24/10/2009 (Signing date of the EPC contract)

1.6 Project Crediting Period

The crediting period is from 03/01/2011 to 28/09/2011.

1.7 Project Location

The proposed project is located in Guazhou County, Jiuquan City, Gansu Province, China, about 18km northwest away from Guazhou County. The geographical coordinates of the proposed project is the Latitude +40.6025 and the Longitude +95.8037.

According to the information from the Chinese DNA, the spatial extent of the project boundary includes the project site and all power plants connected physically to the NWPG, which the project will be connected to.

1.8 Title and Reference of Methodology

The approved baseline and monitoring methodology ACM0002- “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” (Version 12.1.0).

“Tool for the demonstration and assessment of additionality” (Version 05.2).

“Tool to calculate the emission factor for an electricity system” (Version 02)

For more information please refer to the link:

<http://cdm.unfccc.int/methodologies/PAmethodologies/approved.html>

2 IMPLEMENTATION STATUS

2.1 Implementation Status of the Project Activity

The project operates normally and has no any special events during this monitoring period. In addition, these are not events or situations that occurred during the monitoring period which may impact the applicability of the methodology.

2.2 Deviations from the Monitoring Plan

N/A

2.3 Grouped Project

N/A

3 DATA AND PARAMETERS

3.1 Data and Parameters Available at Validation

Data Unit / Parameter:	EF _{grid,CM,y}
Data unit:	tCO2/MWh
Description:	Combined margin CO2 emission factor for grid connected power generation in year y
Source of data:	The registered CDM-PDD of the project
Value applied:	0.92928
Purpose of the data:	baseline emission calculations

Any comment:	The $EF_{grid,CM,y}$ is ex-ante decided in the registered CDM-PDD
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3.2 Data and Parameters Monitored

Data Unit / Parameter:	$EG_{facility,y}$
Data unit:	MWh
Description:	Net electricity supplied to NWPG by the proposed project in year
Source of data:	Calculated by $EG_{export,y}$ and $EG_{import,y}$
Description of measurement methods and procedures to be applied:	-
Frequency of monitoring/recording:	Continuously measurement by electricity meter and recorded monthly
Value monitored:	332,994.0379
Monitoring equipment:	The meters M_{11} and M_{21}
QA/QC procedures to be applied:	The calibration will be carried out according to relevant national standards and regulations by authorized organization. Data measured will be cross checked by records or sales receipts.
Calculation method:	$EG_{facility,y} = EG_{export,y} - EG_{import,y}$ $EG_{import,y} = EG_{import1,y} + EG_{import2,y}$
Any comment:	

Data Unit / Parameter:	$EG_{export,y}$
Data unit:	MWh
Description:	Electricity supplied by the project activity to the grid in year y
Source of data:	Measured by electricity meter
Description of measurement methods and procedures to be applied:	Continuous measurement and monthly recording. Data will be archived with paper backup, and be kept at least for 2 years after the end of the last crediting period.
Frequency of monitoring/recording:	Continuously measurement by electricity meter and recorded monthly

Value monitored:	334,057.68
Monitoring equipment:	The meter M ₁₁
QA/QC procedures to be applied:	The calibration will be carried out according to relevant national standards and regulations by authorized organization. Data measured will be cross checked by records or sales receipts.
Calculation method:	-
Any comment:	-

Data Unit / Parameter:	EG _{import1,y}
Data unit:	MWh
Description:	Electricity imported from the grid through the main meter to the project activity in year y
Source of data:	Measured by electricity meter
Description of measurement methods and procedures to be applied:	Continuous measurement and at least monthly recording. Data will be archived electronically and with paper backup, and be kept at least for 2 years after the end of the last crediting period.
Frequency of monitoring/recording:	Continuously measurement by electricity meter and recorded monthly
Value monitored:	1,011.12
Monitoring equipment:	The meter M ₁₁
QA/QC procedures to be applied:	The calibration will be carried out according to relevant national standards and regulations by authorized organization. Data measured will be cross checked by records or sales receipts.
Calculation method:	
Any comment:	

Data Unit / Parameter:	EG _{import2,y}
Data unit:	MWh
Description:	Electricity imported from the grid through the main meter to the project activity in year y
Source of data:	Measured by electricity meter M ₂₁
Description of measurement methods and procedures to be applied:	Continuous measurement and at least monthly recording. Data will be archived electronically and

	with paper backup, and be kept at least for 2 years after the end of the last crediting period.
Frequency of monitoring/recording:	Continuously measurement by electricity meter and recorded monthly
Value monitored:	52.2608
Monitoring equipment:	The meters M ₂₁
QA/QC procedures to be applied:	The calibration will be carried out according to relevant national standards and regulations by authorized organization. Data measured will be cross checked by records or sales receipts.
Calculation method:	-
Any comment:	According to the VCS PD, the measured value should be adjusted by the factor (1+0.5%)

3.3 Description of the Monitoring Plan

Monitoring organization

The project developer had set up a CDM project team for monitoring of the proposed project activity. Clear roles and responsibilities are assigned to all staffs involved in the CDM project and the prospect of nominating a CDM Manager has been considered. The CDM project manager authorized by the project developer is in charge of all the management works and the fulfilment of the Monitoring Plan. The operation and management structure is show as in Figure C.1:

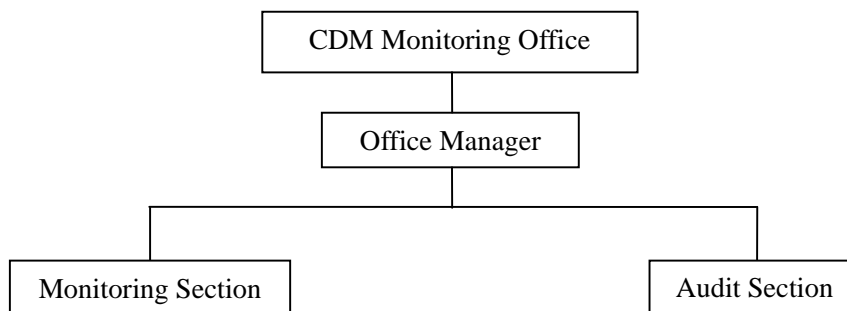


Figure C.1 Monitoring and management Structure

Metering system

The net electricity supplied to the grid are monitored through the main meter M₁₁ installed at the 330kV West Beidaqiao Substation and the Main meter M₂₁ installed at the project site. The main meter M₁₁ is bidirectional and has two-way metering, recording both exports to the grid EG_{export,y} and imports from the grid EG_{import1,y}.

The back-up meter M_{12} is also installed at the 330kV West Beidaqiao Substation and will be used in case of the main meter is out of order.

The main meter M_{21} is to record the electricity imports from the grid ($EG_{import2,y}$) through the backup line. The electricity imported from the grid $EG_{import,y} = EG_{import1,y} + EG_{import2,y}$. The net electricity supplied to the grid $EG_{facility,y} = EG_{export,y} - EG_{import,y}$.

Both the main meter M_{11} and the back-up meter M_{12} are in accuracy of 0.2s, the meter M_{21} is in accuracy of 1.0. The electricity exported to the grid and imported from the grid will be cross-checked with sales receipts.

The accuracy of the back-up meters is 0.5 described in the PDD, however, the accuracy is 1.0 installed in the project. The difference of the electricity meters is 0.5%. According to the CLEAN DEVELOPMENT MECHANISM PROJECT STANDARD (Version 01.0), in order to approach conservation, the value is adjusted as follows: adjusted value = measured value – measured value * adjusted factor. Adjusting factor for electricity exported is (1-0.5%), adjusting factor for electricity imported is (1+0.5%), which in fact inhibits differences between the electric meters accuracy. The percentage is multiplied by the electricity generation in order to calculate the deduction of the measured value. In this project, there is only changed of the back-up meter which monitoring the imported electricity ($EG_{import2,y}$). Therefore, the imported electricity ($EG_{import2,y}$) should be multiplied the adjusting factor((1+0.5%).

The detail metering systems please see the figure C.2. below:

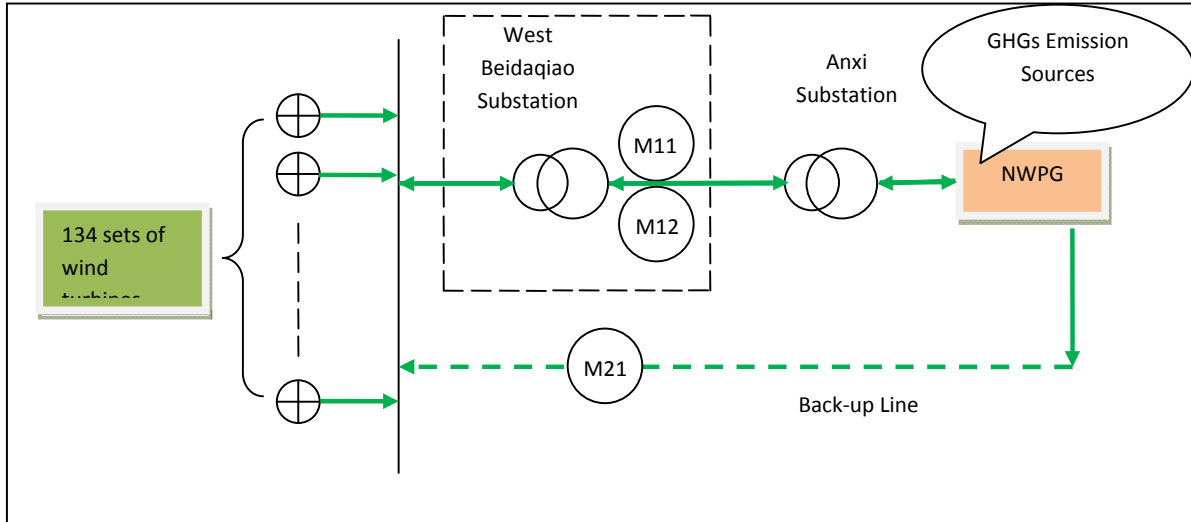


Diagram C.2 Monitoring System and Monitoring Meters

The electricity meters are properly calibrated following relevant provision in applicable national standard. Calibration is carried out by Electricity Metering and Verification Centre of Qinghai Province which is an authorized independent third party. The meter is calibrated no less than once year.

All the meters have been jointly inspected and sealed on behalf of the parties concerned and shall not be interfered with by either party except in the presence of the other party or its accredited representatives.

Table C.3. Main power meters calibration.

Meter	Serial number	Accuracy	Calibration date	Calibration validity
M11	57036843	0.2s	11/10/2010	10/10/2011
			24/03/2011	23/03/2012
M12	57036839	0.2s	11/10/2010	10/10/2011
			24/03/2011	23/03/2012
M21	1000759046	1.0	06/09/2010	05/09/2011
			18/02/2011	17/02/2012
Calibration entity: Electric Energy measurement Center Gansu Electric Power Corporation				

Data collection procedures

- a. The exported electricity monitored by the main meter M11 is read and reported by the project owner and Grid Company at 24 o'clock of the Penultimate day in the end of every month. The imported electricity monitored by the main meter M11 is read and recorded at 24:00 o'clock of 19th round every month; the cut-off time is also depending on the convenience of the grid company. After both side confirmed the record, the receipt is issued by Grid Company.
- b. The meter M21 is usually read and reported at 24:00 o'clock around the 18th of every month, the grid company issued a special receipts for the last day of this monitoring period, the cut-off time is also depending on the convenience of the grid company.
- c. The project owner reports the readings and calculations to the DOE for verification..

QA & QC

The calibration of meters conducted by qualified organization must comply with national standard and sector regulations regularly to ensure the accuracy. The meters are calibrated no less than once a year and must be pasted with seal after calibration. The calibration records must be archived together with other monitoring records.

If any errors are detected the party owning the meters shall repair, recalibrate or replace the meter giving the other party sufficient notice to allow a representative to attend during any corrective activity. If the readings of the main meter are beyond allowable error, the backup meter will be used; if the readings of both the main meter and the backup meter are beyond allowable error, the project owner and Power Grid Company shall jointly prepare a reasonable and conservative estimate of the correct reading.

In any case there is any problem for the meters, the relevant third party is responsible to correct the meters.

After handling of the emergency, the project owner must prepare a report regarding the emergency to explain to DOE that the handling method is reasonable.

Data management

The project owners keep copies of sales receipts and prepare a monitoring report when necessary, which includes the net electricity generation, the calibration records, the emission reductions calculation and meters' corrective action records.

The monitoring data is verified by the Office Manager once every quarter. If there is anything wrong for the data, the Office Manager will correct the data according to other meters and historical data and write the corrective action records for it.

All the electronic and paper documents will be archived during the crediting period and two years after the end of the crediting period or the last issuance of CERs, whichever occurs later.

Training program

The project owner will entrust the professional engineers and experts to train all the relative staffs before operation of generators. The training contains CDM knowledge, operational regulations, quality control (QC) standard flow, data monitoring requirements and data management regulations etc.

4 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

4.1 Baseline Emissions

Calculation of Baseline Emissions (BE_y)

The project activity is the installation of a new grid-connected renewable power plant. According to ACM0002 (Version 12.1.0), baseline emission include only CO₂ emission from electricity generation in fossil fuel fired power plants that are displaced due to the project activity.

The baseline emissions are to be calculated as follows:

The baseline emissions factor can be calculated with the following steps as described below:

$$BE_y = EG_{\text{facility},y} * EF_{\text{grid},CM,y} \tag{1}$$

Where:

BE_y Baseline emission in the monitoring period (tCO₂);

EG_{facility,y} Quantity of net electricity generation supplied to the grid as a result of the implementation of the CDM project activity in the monitoring period (MWh);

EF_{grid,CM,y} Combines margin CO₂ emission factor for grid connected power generation in the monitoring period calculated using the “Tool to calculate the emission factor for an electricity system” (tCO₂/MWh).

Table 4.1-1 Electricity supplied to the grid by the Project EG_{export,y}

Period		EG _{export, receipt,y}	EG _{export, monthly report,y}	EG _{export,y}
		(MWh)	(MWh)	(MWh)
		A	B	C=min(A,B)
04/01/2011*	29/01/2011	22867.68	22867.68	22867.68
30/01/2011	26/02/2011	41540.40	41540.40	41540.40
27/02/2011	29/03/2011	47168.88	47168.88	47168.88
30/03/2011	28/04/2011**	115201.68	115201.68	115201.68
29/04/2011	29/05/2011			
30/05/2011	28/06/2011			
29/06/2011	29/07/2011	33607.20	33607.20	33607.20
30/07/2011	29/08/2011	37369.20	37369.20	37369.20

30/08/2011	28/09/2011	36302.64	36302.64	36302.64
Total		/	/	334057.68

* The electricity sales receipts did not include the electricity generated on 03/01/2011, but the electricity imported from the grid on that day was counted in the calculation of emission reductions, this is conservative.

**On 28/04/2011, the grid company read the meter a few minutes after the PP. On 29/05/2011 and 28/06/2011, both the grid company and the PP read the meter at the same time, the total electricity of the receipts for these three months equal to the total electricity in the meter readings from 30/03/2011 to 28/06/2011. Please refer to the ER calculation sheet for detail.

Table 4.1-2 Electricity imported from the grid via 35kV line by the Project $EG_{import1,y}$

Period		$EG_{import1, receipt,y}$	$EG_{import1, monthly report,y}$	$EG_{import1,y}$
		(MWh)	(MWh)	(MWh)
		D	E	F=Max(D,E)
03/01/2011*	20/04/2011	438.24	438.24	438.24
21/04/2011	20/05/2011	47.52	47.52	47.52
21/05/2011	20/06/2011	89.76	89.76	89.76
21/06/2011	20/07/2011	87.12	87.12	87.12
21/07/2011	20/08/2011	87.12	87.12	87.12
21/08/2011	20/09/2011	73.92	73.92	73.92
21/09/2011	19/10/2011*	187.44	187.44	187.44
Total		/	/	1011.12

* For the first four months, the grid company only issued one receipts to the PP, therefore, the sum of electricity in the first four months in the monthly records are used for crosscheck for this monitoring period.

** For the month from 21/09/2011 to 19/10/2011, since the grid issued the receipts for the whole month and it's hard to separate the electricity for the VCS crediting period, the electricity imported from the grid in the whole month was used in the calculation of ER, this is conservative.

Table 4.1-3 Electricity imported from the grid via the backup line $EG_{import2,y}$

Period		$EG_{import2, receipt,y}$	$EG_{import2, monthly report,y}$	$EG_{import2,y}$
		(MWh)	(MWh)	(MWh)
		G	H	I=Max(G,H)
03/01/2011	27/01/2011	38.4484	34.9734	38.4484
28/01/2011	16/02/2011	1.0742	0.3702	1.0742
17/02/2011	16/03/2011	0.9878	0.2898	0.9878
17/03/2011	18/04/2011	4.4590	3.5340	4.4590
19/04/2011	17/05/2011	1.3882	0.6642	1.3882

18/05/2011	18/06/2011	2.8568	2.0358	2.8568
19/06/2011	18/07/2011	0.8290	0.1410	0.8290
19/07/2011	18/08/2011	0.7550	0.0720	0.7550
19/08/2011	18/09/2011	0.7420	0.0600	0.7420
20/09/2011	19/10/2011*	0.7204	0.0324	0.7204
Total		/	/	52.2608

** For the month from 21/09/2011 to 19/10/2011, since the grid issued the receipts for the whole month and it's hard to separate the electricity for the VCS crediting period, the electricity imported from the grid in the whole month was used in the calculation of ER, this is conservative.

$$EG_{\text{facility},y} = EG_{\text{export},y} - EG_{\text{import1},y} - EG_{\text{import2},y} \times (1 + 0.5\%) = 334057.68 - 1011.12 - 52.2608 \times (1 + 0.5\%)$$

$$= 332,994.0379 \text{ MWh}$$

Therefore, the E_G is 332,994.0379 MWh during this monitoring period, the E_{F_{grid,CM,y}} is ex-ante determined in the registered CDM-PDD which is 0.92928 tCO₂/MWh. Thus, BE is calculated as:

$$BE_y = EG_{\text{facility},y} * EF_{\text{grid,CM},y} = 332,994.0379 * 0.92928 = 309,444 \text{ (tCO}_2\text{)}$$

4.2 Project Emissions

According to ACM0002 (Version 12.1.0), there are no expected project emissions related to the generation of electricity. Consequently it is not necessary to calculate the power density. Therefore,

$$PE_y = 0.$$

4.3 Leakage

No leakage needs to be considered in the Project. Therefore, L_E = 0

4.4 Summary of GHG Emission Reductions and Removals

The annual emission reduction estimated in the registered CDM-PDD is 428,829 tCO₂e/y. The total amount of emission reductions for the Project during this monitoring period is calculated as 309,444 tCO₂e.

The comparison of the actual emission reduction reached during the monitoring period with the estimates in the PDD is shown in the table below:

Item	Values applied in ex-ante calculation of the registered CDM-PDD	Actual values reached during the monitoring period
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Emission reductions (tCO ₂ e)	316,041 (total 269 days)	309,444 (total 269 days)
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5 ADDITIONAL INFORMATION

The actual emission reduction achieved during the monitoring period is less than the estimated value in the CDM-PDD.